



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF SE-5J

June 19, 2001



Dear [REDACTED]:

As requested, provided is a written response to your questions and concerns regarding cleanup activities in the Streeterville area. I hope that this information will provide you with a better understanding of the on-going activities in the area.

**1. Update on the Lindsay Light II/RV3 North Columbus Drive Site**

Work at the Lindsay Light II/RV3 North Columbus Drive Site has been completed. Additional construction activities are being conducted on the Illinois Street sidewalk (between Columbus Drive and St. Clair). These activities are due to the installation of caissons for the upper level of Illinois Street. Although there will be continuous monitoring during the activities, a contingency plan was prepared (as required for any construction activities) to deal with any scenarios where radioactive materials may be found.

**2. Explanation of "results" column on the "Additional properties being investigated" chart**

For your review, we have attached a footnote document entitled, "Explanation of Count Rate Readings and how they were used to survey Streeterville sites." Hopefully, this document will provide you with a more detailed explanation of the results from the additional properties chart.

**3. Water sampling results on the Lindsay Light II/RV3 North Columbus Drive Site**

Below are the results of the water sampling results done on the Lindsay Light property. For your reference, a copy of the results is attached. The results are:

Radium-226	less than 2.9 picocuries per liter
Radium-228	less than 2.6 picocuries per liter

Thus, the total radium would be less than 5.5 picocuries per liter.

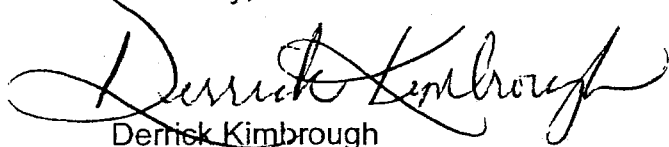
If this groundwater was used by the local community for drinking water, we would refine this result to obtain a more precise indication of the total radium concentration.

However, it was our intent to look for major concentrations of radium, indicating soil wastes that had dissolved. We do not see that from this data for the Lindsay Light II/RV3 North Columbus Drive Site. The total radium concentration in the groundwater is, at most, 10% above the U.S. Environmental Protection Agency (U.S. EPA) radium drinking water standard of 5 picocuries per liter and, because of the less than designations, could be anything lower, even zero. Most specifically, since Streeterville residents do not drink this groundwater, U.S. EPA drinking water standards are not applicable.

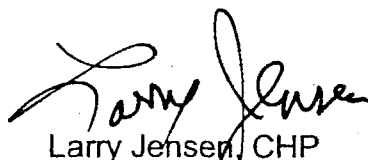
It is U.S. EPA's judgement that this groundwater data, collected at the Grand Pier property, does not indicate contamination by radioactive wasters from the Lindsay Light operations.

In the meantime, if you have any questions, please feel free to contact either Derrick Kimbrough ([kimbrough.derrick@epa.gov](mailto:kimbrough.derrick@epa.gov)) at (312) 886-9749 or Larry Jensen ([jensen.larry@epa.gov](mailto:jensen.larry@epa.gov)) at (312) 886-5026.

Sincerely,



Derrick Kimbrough  
Community Involvement Coordinator



Larry Jensen, CHP  
Senior Health Physicist  
Emergency Response Section #3

Enclosure

## Footnote

### EXPLANATION OF COUNT RATE READINGS AND HOW THEY WERE USED TO SURVEY STREETERVILLE SITES

Counts are meter readings that indicate a gamma ray was recorded by the meter sensor. The number of counts recorded in equal time intervals is called the count rate (e.g., 3000 counts per minute). Higher count rates can indicate more volume of radioactive material or stronger radioactive material. Moving closer to radioactive material will also give higher count rates.

Count rate readings were used in Streeterville to (1) survey sites for spots and areas that seemed to deviate from normal, (2) look for patterns in radiation levels on a site and (3) to obtain data that would allow comparisons of levels from place to place on the site.

The usual process was to first walk the entire site, looking for changes. If obviously elevated spots were found, the area around the spot would be immediately investigated more closely and at least the maximum count rate at the spot would be recorded. However, no matter what was found in this walkover of the entire site, a detailed count rate record was produced for every site by going over the entire site again and taking count rates at clear reference points, such as the center of every parking spot or down the centerline between parking spots, using the center of the parking spots as a reference. This involved setting the meter on the ground and measuring the counts over some time, such as 30 seconds.

The purpose of these walkover surveys was to: gain a sense of whether the site was relatively uniform, indicating no immediate need for further investigation (unless readings, based upon previous experience, were abnormally high everywhere); to identify and quantify any obvious areas that deviated from background; to identify spots or regions that deviated from background count rates enough to arouse suspicions sufficiently that further investigation was necessary.

Assessing the data was a complex process because:

1. There was no site in the local area that could be used to set reference levels for count rate. This is called a **Background Site** and is assumed to be unaffected by contaminants. Streeterville has no such Background Site because, since we have no historical records of where Lindsay's thorium wastes went, there is no site for which we can say with absolute certainty that it is uncontaminated.
2. The reference level for a site, the Background Count Rate, was generally selected from the lowest count rates found on the site. Deviations from this reference level were judged to indicate further investigation if they reached or exceeded 2 to 3 times the Background Count Rate. However, even if deviations were slight but they were clustered in particular areas of the site, this still might indicate a need for more investigation.

3. Using a site background count rate is somewhat risky because, if the entire site was contaminated, the background count rate might be elevated everywhere. This could obscure indications of contamination. For Streeterville, however, there was no option but to use a site background count rate.
4. All of the sites we wished to survey are not undisturbed and usually contain rubble that (a) can both shield out underlying radiation if it is there and (b) has its own natural radioactivity. Again, this could obscure indications of contamination.

### EXAMPLES

1. A site is walked. All readings are between 3000 and 4000 counts per minute. The background count rate would be taken as about 3500 counts per minute. No radiation levels out of the ordinary are indicated. No immediate further investigation is required. However, if the site is excavated, further investigation is warranted because overlying soil and rubble may have obscured indications of contamination.
2. A site is walked. The background count rate is 3500 counts per minute. One spot, 1 foot in diameter, is found at 50,000 counts per minute. Thus, further investigation, such as drilling, measuring subsurface count rates and taking soil samples will be necessary, at least at this spot.
3. A site is walked. The background count rate is 3500 counts per minute. One region, about 5 feet in diameter, has count rates from 8000 to 9000 counts per minute. Because these count rates are in the 2 to 3 times background range, further investigation is warranted.
4. A site is walked. The background count rate is 3500 counts per minute. The site as a whole does not exceed 4500 counts per minute except that one region, about 15 feet long and 5 feet wide, has count rates that are consistently about 6500 counts per minute. Even though 2 times background is not exceeded by this region, the fact that the region is obviously different from the rest of the site might warrant further investigation. This is because, it is possible there is a buried radioactive waste deposit that is so shielded by overlying rubble, that there is very little indication on the surface that it is there.
5. A site is walked. The background count rate is 3500 counts per minute. The site has relatively uniform count rate except that every time a certain building wall is approached, the count rate rises to about 9000 counts per minute. When the meter is placed on the wall, the readings are about 12,000 counts per minute. No contamination is indicated here. The cause of the meter readings appears to be the natural radioactivity of the bricks. This is not uncommon.